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Same-Gender and Cross-Gender Likeability: Associations With Popularity and Status Enhancement: The TRAILS study

Jan Kornelis Dijkstra,[1] Antonius H. N. Cillessen,[2,3] Siegwart Lindenberg,[1] and René Veenstra[1,4]

Abstract

This study examined the associations of popularity, substance use, athletic abilities, physical attractiveness, and physical and relational aggression with likeability by same-gender and cross-gender peers among early adolescents (N = 3,312; M age = 13.60, with 92.7% of the participants in the 12-14 age range). Data collection consisted of peer nominations in 172 classrooms of 34 secondary schools. Taking a goal-framing perspective, it was argued that key to understanding the association between popularity and likeability is the distinction between features that help to *achieve* popularity and features that help to *maintain* popularity. In support of our hypotheses, popularity and substance use, athletic abilities, and physical attractiveness (characteristics that help to become popular) contributed significantly to likeability, whereas physical and relational aggression (characteristics that help to maintain popularity) negatively predicted likeability. These specific nature of these effects depended on the reference group (same-gender vs. other-gender peers) and were further moderated by popularity.

[1]University of Groningen
[2]Radboud University Nijmegen
[3]University of Connecticut
[4]University of Turku

Corresponding Author:
Jan Kornelis Dijkstra, ICS, University of Groningen, Grote Rozenstraat 31, 9712 TG Groningen, Netherlands.
Email: jan.dijkstra@rug.nl

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likeability, popularity, gender, antisocial behavior

An important feature of adolescence is the increasing relevance of peer relationships (Berndt, 1982; Coleman, 1961; Corsaro & Eder, 1990; Hartup, 1992; Parker & Asher, 1987; Rubin, Bukowski, & Parker, 2006; Sullivan, 1953). An important aspect of peer relationships that influences adolescents' social and emotional development is status in the peer group (Ollendick, Weist, Borden, & Greene, 1992; Rubin et al., 2006). This study focused on two forms of peer status, that is, likeability and popularity, and the way they are related to each other.

A long tradition of research has examined the causes and consequences of likeability. Likeability is the basis for assigning children or adolescents to the sociometric status groups (sociometrically) popular, rejected, neglected, and controversial (Bukowski & Cillessen, 1998; Coie, Dodge, & Coppotelli, 1982; Dodge, 1983; Gifford-Smith & Brownell, 2003; Newcomb, Bukowski, & Pattee, 1993). These groups are defined on the basis of social preference (the difference between liked and disliked judgments) and social impact (the sum of liked and disliked judgments). In addition to these composite dimensions, researchers have also used peer acceptance (liking) and peer rejection (disliking) scores separately (see Gifford-Smith & Brownell, 2003). The current study followed this latter practice.

In peer relationships research, likeability is seen as an indicator of status and popularity, often referred to as sociometric popularity. However, ethnographic studies have shown that adolescents who are seen as popular by their peers are not by definition liked (Adler & Adler, 1995, 1998; Eder, 1985; Merten, 1997). Apparently, popularity does not equate to being liked. For this reason, researchers have studied the construct of (perceived) popularity as distinct from sociometric popularity (see, for a review, Cillessen & Rose, 2005). Perceived popularity is derived from nominations for who is most and least popular. Perceived popularity has also been referred to as consensual popularity, judgmental popularity, or reputational popularity (see, for a review, de Bruyn & Cillessen, 2006). As they refer to the same underlying construct, the general term *popularity* is used in this study.

Research has shown the distinct features of likeability and popularity (see Cillessen & Rose, 2005). Whereas likeability is primarily based on prosocial features, such as friendliness and being helpful, popularity is based on a combination of prosocial as well as antisocial antecedents, including aggression (Dijkstra, Lindenberg, Veenstra, Verhulst, & Ormel, 2009; LaFontana &

Cillessen, 2002; Lease, Kennedy, & Axelrod, 2002; Parkhurst & Hopmeyer, 1998). From an evolutionary perspective it has been argued that status and dominance are most favored by using coercive, aggressive strategies in combination with prosocial strategies—the so-called bistrategic controllers—who gain more access to valuable resource (Hawley, Little, & Card, 2007).

Underlining this claim, popularity has been related to resource control (Hawley, Little, & Card, 2008) and dominance (LaFontana & Cillessen, 2002; Lease et al., 2002; Parkhurst & Hopmeyer, 1998). Furthermore, popularity has been associated with prominence (Adler & Adler, 1995; Eder, 1985; Merten, 1997), visibility (Lease et al., 2002), influence (Adler & Adler, 1995, 1998), and admiration and leadership (Lease et al., 2002).

Thus, popularity is a multidimensional construct. However, when adolescents are asked to complete popularity nominations, it is unclear on which of these dimensions they might be judging each other. One central aspect of popularity is the idea that the popular adolescent is attractive to many and someone that peers in general want to hang out, affiliate, or associate with (Adler & Adler, 1995, 1998; Eder, 1985). In the current study, we specifically measured this social centrality aspect of popularity. Adolescents were asked to name peers who they thought everyone wanted to be associated with. Personal preferences were removed from the assessment by asking adolescents not who they personally wanted to hang out with, but who they thought the peer group in general wanted to hang out with. This yielded a reputational measure of affiliation attractiveness or affiliative popularity that we refer to simply as *popularity*.

Likeability and popularity correlate only moderately (Lease et al., 2002; Parkhurst & Hopmeyer, 1998). Although there are differences in the strength of this association across studies, probably due to variations in operational definitions, the correlation between likeability and popularity never exceeds the criterion for convergent validity (Cillessen & Mayeux, 2004; Hawley et al., 2007; Rose, Swenson, & Waller, 2004). Thus, these studies document that popularity and likeability are separate dimensions of the peer group, but relatively little is known about the reasons behind their modest correlation. The overarching goal of the current study was to contribute to this understanding. In addition, this study had two specific goals.

The Present Study

Our first specific goal was to extend research on the association between popularity and likeability by examining liking by same-sex and other-sex peers separately. In middle childhood, peer groups are heavily segregated by

gender and the majority of sociometric judgments, both positive and negative, take place within gender. However, in early adolescence cross-sex interactions become more interesting, and same-sex interactions changes also, becoming more contentious and competitive (Bukowski & Cillessen, 1998; Bukowski, Sippola, & Newcomb, 2000; Maccoby, 1998).

Therefore, one way to understand the modest association between popularity and likeability might be to disentangle evaluations of likeability from same-sex and other-sex peers. For example, if popular adolescents are liked by members of the other sex but envied and disliked by members of their own sex, an overall correlation of zero would result. The increased competition for romantic attention that is characteristic for early adolescence could cause such opposite effects. Although a number of studies have examined the correlation between popularity and liking in general, no study has examined the associations between early adolescent popularity and liking by same-sex and other-sex peers separately.

Our second specific goal was to not only document the associations between popularity and liking by same- and other-sex peers but also to provide a theoretical foundation for it. So far, such a theoretical foundation is limited. Hawley and colleagues' (2007, 2008) work on resource control can be used indirectly toward this purpose. They showed that adolescents who combine coercive and prosocial behaviors are both popular and liked, probably due their ability to mitigate the negative effects of their aggression with prosocial skills (Hawley, Little, & Card, 2008; see also Dijkstra, Lindenberg, et al., 2009). Although these findings explain how popularity and liking can be combined, they did not address the role of gender in this process. The focus of the current study was not on resource control but on how different correlates of adolescent popularity, such as attractiveness, athleticism, aggression, and antisocial behavior determine liking by same-sex and other-sex peers.

Hypotheses

The overall theoretical framework of this study was a goal-framing approach (Lindenberg, 2006; Lindenberg & Steg, 2007). Recent research has shown that the aspects of social life that are either conducive to one's goals or thwart them receive particular attention (e.g., Ferguson & Bargh, 2004; Kruglanski et al., 2002). Goals are important for the way people evaluate others. Specifically, what helps a person's goals will be liked but what thwarts them will be disliked (Ferguson & Bargh, 2004). In the realm of peer relationships, goals have been previously related to peer status (e.g., Crick & Dodge, 1994; Dijkstra, Lindenberg, & Veenstra, 2007; Heidgerken, Hughes, Cavell, &

Willson, 2004; Ojanen, Grönroos, & Salmivalli, 2005; Renshaw & Asher, 1983). For example, the status of well-liked children has been attributed to their ability to facilitate and enhance the goals of their peers (Newcomb et al., 1993) and to the fact that they are unlikely to interfere with their peers' goals (Rubin et al., 2006). Whereas others already argued that certain behaviors, such as aggression, can be effective means to achieve goals (Hawley et al., 2007), we focus explicitly on what goals might be served by various behaviors. This results in testable hypotheses about the associations of popularity with liking by same-sex and other-sex peers and about the role of popularity-related characteristics and behaviors in these associations.

Obtaining status is a universal goal (Barkow, 1989; Huberman, Loch, & Önçüler, 2004; Lindenberg, 2001) and adolescents are no exception (Jarvinen & Nicholls, 1996; Ojanen et al., 2005). In early adolescence, sensitivity to position in the peer hierarchy increases (Adler & Adler, 1998; Corsaro & Eder, 1990; Ollendick et al., 1992; Prinstein & La Greca, 2004; Sullivan, 1953). One reason for this is that during the transition from childhood to adolescence, which usually coincides with entrance to secondary education, adolescents begin to participate in larger peer groups, in which friendship and clique formation is often driven by status (Corsaro & Eder, 1990). Moreover, in the establishment of cross-gender contact at this age, popular adolescents have an advantage due to their prominent position in the peer group (Mayeux, Sandstrom, & Cillessen, 2008; Pellegrini & Bartini, 2001). The goal of obtaining popularity among peers leads to a distinction between characteristics and behaviors that help to *achieve* popularity and those that help to *maintain* it (Dijkstra, Lindenberg, et al., 2009). This distinction is also crucial for understanding how popularity and status-enhancing characteristics and behaviors are related to same-gender and cross-gender likeability.

For early adolescents, achieving popularity is influenced by the growing discrepancy between increasing biological maturation but limited social opportunities to behave as an adult. This maturity-gap has been used to explain the increase of antisocial behavior in adolescence (Agnew, 2003; Greenberg, 1977; Moffitt, 1993). It has been argued that the discrepancy between biological maturation but social dependence evokes strain, which in turn leads adolescents to seek alternative ways to emphasize their independence, for instance through antisocial behavior. This explanation can be extended to explain the achievement of popularity (Dijkstra, 2007; Dijkstra, Lindenberg, et al., 2009). Behaviors that help to achieve popularity are those that show maturity and autonomy. Popularity is achieved by showing peers that one can bridge the maturity gap by engaging in adult behaviors that underline maturation and autonomy.

Substance use and athleticism (for boys), and attractiveness (for girls) are in this category and have been related to being popular (Adler & Adler, 1995; Allen, Porter, McFarland, Marsh, & McElhaney, 2005; Cairns & Cairns, 1995; Eder & Parker, 1987; LaFontana & Cillessen, 2002; Lease et al., 2002; Mayeux et al., 2008; Rodkin, Farmer, Pearl, & Van Acker, 2000; Xie, Cairns, & Cairns, 1999; Zakin, 1983). Substance use as a form of rule breaking signals independence from parents and teachers (Agnew, 2003; Bukowski et al., 2000; Corsaro & Eder, 1990; Luthar & McMahon, 1996; Moffitt, 1993). Athleticism and attractiveness signal physical and sexual maturity. They contribute to closing the maturity gap by being sexually attractive to other adolescents (Graziano, Jensen-Campbell, Shebilske, & Lundgren, 1993).

Previous studies have shown that popularity is related to physical and relational aggression both for genders (LaFontana & Cillessen, 2002; Rose et al., 2004; Vaillancourt & Hymel, 2006). It has been argued that aggression serves to establish dominance in the peer group (Card, Stucky, Sawalani, & Little, 2008; Hawley, 1999). Pellegrini and Bartini (2001) attributed decreases of aggression across the school year to the settlement of status hierarchies. However, aggression was positively associated with dominance across the entire school year. Ethnographic studies have shown that popular adolescents use aggressive means to divert competitors who challenge their status (Adler & Adler, 1998; Eder, 1985; Merten, 1997; see also LaFontana & Cillessen, 2002). We argue that physical and relational aggression are not means to achieve popularity but are behaviors aimed at maintaining popularity.

If we are right in this, popularity would predict aggression over time, whereas aggression would not predict popularity. Empirical evidence seems to favor this claim. Although some studies showed that relational aggression predicted popularity over time particularly for girls (Cillessen & Mayeux, 2004; Rose et al., 2004), overt aggression did not predict popularity (Cillessen & Mayeux, 2004) or even decreased popularity (Rose et al., 2004). Conversely, these same studies showed that popularity contributed to both overt and relational aggression over time (Cillessen & Mayeux, 2004; Rose et al., 2004). The idea that aggression is not so much a means to achieve status has further been supported by studies showing that prosocial skills weaken the negative effects of popular adolescents' aggression on their position in the peer group, suggesting that aggression as such does not contribute to status achievement (Dijkstra, Lindenberg, et al., 2009; Hawley et al., 2007; Vaillancourt & Hymel, 2006).

The distinction between characteristics that achieve popularity and those that help maintain it is a key to understanding the relationship of popularity to likeability. From a goal-framing point of view, what contributes

to achieving popularity will also contribute to likeability. In contrast, what contributes to beating the competition for popularity will subtract from likeability, even though it helps to maintain power. Thus, our first hypotheses concern the differences in the *direction* of relationships of popularity and both types of characteristics with likeability by same-sex and other-sex peers.

Hypothesis 1a: Popularity is positively associated with liking by same-sex and other-sex peers.
Hypothesis 1b: Substance use, attractiveness, and athleticism are positively associated with liking by same-sex and other-sex peers.
Hypothesis 1c: Physical aggression and relational aggression are negatively associated with liking by same-sex and other-sex peers.

The second set of hypotheses qualifies these hypotheses by gender of the peers. Competition for status occurs mostly with same-sex peers (Luthar & McMahon, 1996). Because status is relative to the group, only a few peers can be at the top. Even though there may be an overall sense of admiration for those at the top, the overall level of admiration may be tempered by resentment from same-sex peers. Moreover, if peers at the top use aggressive tactics against lower-status peers to maintain their position, the ambivalence of the peer group toward them will be enhanced. This would be especially true for same-gender peers who are most likely to be targeted by these high-status peers. In contrast, popularity is highly visible for other-sex peers, who do not experience these negative side effects (Bukowski et al., 2000). Thus, we expected that peers who are high in status or use status-enhancing behaviors are liked more by other-sex peers than by same-sex peers. Other-sex peers only experience the attractive features of the popular peer, whereas same-sex peers also experience the resentment and competition. Our second set of hypotheses therefore concerns differences in strength of the associations of popularity and its determinants with liking by same-gender and cross-gender peers. We expect that

Hypothesis 2a: Popularity is more positively associated with liking by other-sex than with liking by same-sex peers.
Hypothesis 2b: Substance use, attractiveness, and athleticism are more positively associated with liking by other-sex than with liking by same-sex peers.
Hypothesis 2c: Physical and relational aggression are more negatively associated with liking by same-sex peers than with liking by other-sex peers.

Two prominent explanations for affiliation and attraction, the similarity theory and the features theory (Bukowski et al., 2000), would have difficulty making these predictions. The similarity perspective would emphasize that similarity in gender steers attraction to peers (see also Dijkstra et al., 2007). Hence, popularity would then be expected to contribute to liking by same-sex peers rather than cross-sex peers, contradictory to our prediction. A features theory predicts that certain behaviors and characteristics are considered attractive, and, consequently, increase likeability. However, this theory cannot predict *what* behaviors are or are not attractive and increase likeability. The goal-framing approach combined with maturity-gap effects led us to consider behaviors in terms of making a distinction between achieving and maintaining status as important goals for adolescents.

The third set of hypotheses concerns the way popularity further moderates the effects of substance use, attractiveness, athleticism, physical aggression, and relational aggression on likeability. We expect that the moderating effect of popularity differs for both types of features.

Popularity is strongly intertwined with different status enhancing behaviors, such as substance use, physical attractiveness, and athletic abilities (Adler & Adler, 1995; Allen et al., 2005; Cairns & Cairns, 1995; Dijkstra et al., 2007; LaFontana & Cillessen, 2002; Lease et al., 2002; Rodkin et al., 2000; Xie et al., 1999). As popularity is strongly correlated with these features, their positive effects on likeability are weakened when their interaction with popularity is taken into account. In other words, the effects of substance use, athletic abilities, and physical attractiveness are to a certain extent accounted for by popularity. For example, being good in sports might add more to being liked by peers for adolescents who are not (yet) considered popular than for adolescents who already are popular. Thus, we expected that

Hypothesis 3a: Popularity weakens the positive effects of substance use, athletic ability, and physical attractiveness on liking by same-sex and other-sex peers.

We also expected a moderating effect of popularity on the associations between physical and relational aggression and liking but in the other direction. As stated above, popular adolescents are expected to use aggressive means against same-sex peers to consolidate their own status. Moreover, popular adolescents evoke ambiguous reactions from peers, particularly from same-sex peers who compete with them for status. Hence, increased popularity is expected to exacerbate the effects of physical and relational aggression

on disliking by same-sex peers. As cross-sex peers do not compete with popular adolescents for status, and aggression is less likely to be directed toward them, no interaction for cross-sex likeability was expected.

Hypothesis 3b: Popularity increases the negative effects of physical and relational aggression on likeability by same-sex peers.

In summary, this study examines the effects of popularity, popularity-enhancing features, and popularity-maintaining features on liking by same- and other-sex peers. The first set of hypotheses addresses the direction of these associations. The second set of hypotheses addresses differences in the strength of these associations. The third set of hypotheses addresses the moderating effects of popularity on the associations of status-enhancing and status-maintaining features on liking by same-sex and other-sex peers.

Method

Participants and Procedure

This study used a subsample from a larger cohort study, TRacking Adolescents' Individual Lives Survey (TRAILS; de Winter et al., 2005; Huisman et al., 2008). Peer nominations were collected from TRAILS participants and their classmates in classrooms with at least three TRAILS participants (cf. Dijkstra, Lindenberg, et al., 2009; Dijkstra, Lindenberg, & Veenstra, 2008). Schools provided the names of the students in each classroom. All eligible students and their parents then received an information letter describing the study. Students or parents used a mail-in reply card if they did not wish to participate. In total, 98 students, three TRAILS participants, refused to participate. Two weeks after the information letter, a TRAILS staff member visited the classroom to collect peer nomination data. Nominations were collected within classrooms because students in the first 2 years of Dutch secondary schools spend the majority of their school time with the same classroom peers. The sociometric data collection lasted 15 min and took place during regular classroom sessions. The instructions emphasized that the data were confidential. Students then received the nominations questionnaire and a roster with the names of all participating classmates. During the sociometric administration, the teacher remained in the classroom. The staff member made sure that students completed their questionnaire quietly.

Peer nominations were collected in 72 first-year and 100 second-year classrooms of 34 secondary schools. The classrooms were evenly divided by

educational track: low (60 classrooms), middle (53), and high (59). Of the 3,672 students who were asked to participate, 90.2% completed the sociometric measure. This yielded a sample of 3,312 students (1,675 boys, 1,637 girls), including 1,007 TRAILS participants (*M* age = 13.60; *SD* = .66; 92.7% of the participants were between the ages of 12 and 14). The average number of students per classroom was 18.4 (*SD* = 6.0; range: 7 to 30). The ethnic composition of the sociometric sample was 87.3% White, 0.5% Turkish, 0.6% Moroccan, 1.7% Surinamese, 1.2% Antillian/Aruban, 2.5% Indonesian, and 6.1% Other.

TRAILS students who participated in the sociometric assessment did not differ from TRAILS students who did not participate in the sociometric assessment in terms of gender, social withdrawal, impulsivity, or delinquency. However, *t* tests indicated that they were less depressed and aggressive and had fewer social and attention problems ($p < .05$). These differences, however, were not considered crucial for the goals of the current study.

Measures

All measures in the present study are derived from the peer nominations. Respondents could name an unlimited number of peers for each question. Same-gender as well as cross-gender nominations were allowed for each question.

Same-gender and cross-gender likeability. Same-gender likeability was based on the number of nominations students received from same-gender peers for the question "Which classmates do you like?" Cross-gender likeability was based on the number of nominations students received from cross-gender peers for this same question. In both cases, the raw number of nominations was divided by the number of participating same-gender and cross-gender classmates. This yielded proportion scores (range: 0-1) that indicated by what proportion of same-gender and cross-gender classmates each student was named as liked.

Popularity. Popularity was the number of nominations received for the question "Who do others want to be associated with?" again divided by the number of nominating classmates. To determine whether this measure of popularity was distinct from other dimensions of peer status, it was correlated with social preference (liked minus disliked nominations received), social impact (liked plus disliked nominations received), best friend nominations received, and liked most nominations received. These correlations were sufficiently low (*r*s = .15, .24, .27, and .19, respectively) to indicate that popularity was not redundant with the other constructs.

Status-enhancing characteristics and behaviors. Peer nominations were also used to assess substance use ("Who uses alcohol and/or [soft]drugs on a regular basis?"), athletic abilities ("Who is good in sports?"), physical attractiveness ("Who is good looking?"), overt aggression ("Who often argues and/or initiates a fight?"), and relational aggression ("Who gossips/spreads rumors about others?"). Nominations received were again divided by the number of nominators, yielding proportion scores from each construct. Finally, all peer-nomination based proportion scores were standardized in the total sample to a mean of 0 and standard deviation of 1.

Results

Descriptive Statistics

Table 1 presents the means and standard deviations for all study variables in the total sample and by gender. Gender differences were tested using *t*-tests. Boys had higher cross-gender likeability scores than girls, $t(3292) = -4.78$, $p < .001$, whereas girls had higher same-gender likeability scores , $t(3307) = 7.11$, $p < .001$. Boys scored higher than girls on substance use, $t(3167) = 4.54$, athletic abilities, $t(3092) = 20.21$, and physical aggression, $t(2226) = 18.88$ (all *p*s < .001). Girls scored higher on attractiveness, $t(2686) = 23.43$, and relational aggression, $t(2783) = 19.71$ (all *p*s < .001). There was no gender difference for popularity.

Correlations Among Main Study Variables

Table 2 presents the correlations between the predictor variables and same- and cross-gender likeability in the total sample and by gender. As far as no large differences appeared in the correlations for boys and girls, we focus on differences in correlations between predictor variables and same- versus cross-gender likeability in the total sample.

Popularity was more positively associated with cross-gender likeability than same-gender likeability (*r*s = .25 and .04, respectively, $z = 12.39$, $p < .001$). The same was true for substance use (*r*s = .14 and .03, respectively, $z = 6.38$, $p < .001$). Athletic abilities and attractiveness correlated positively with both types of likeability. The correlations of athletic abilities with same- and cross-gender likeability did not differ for boys (*r*s = .32 and .31, respectively, $z = .45$, $p = .64$). For girls, however, athletic abilities were more strongly associated with cross-gender likeability ($r = .34$) than same-gender likeability ($r = .19$, $z = 6.54$, $p < .001$). Attractiveness was more strongly

Table 1. Descriptive Statistics for Main Study Variables

	Total sample (*N* = 3,312)		Boys (*N* = 1,675)		Girls (*N* = 1,637)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Same-gender likeability	.68	.23	.66	.24	.71	.23
Cross-gender likeability	.43	.27	.46	.28	.41	.26
Popularity	.10	.13	.10	.13	.10	.12
Substance use	.07	.13	.08	.15	.06	.12
Athletic abilities	.30	.27	.39	.28	.21	.21
Physical attractiveness	.19	.19	.11	.13	.26	.22
Physical aggression	.08	.14	.12	.18	.03	.07
Relational aggression	.12	.13	.08	.10	.17	.15

Table 2. Correlations of Status and Status-Related Characteristics With Same- and Cross-Gender Likeability

	Total sample (*N* = 3,312)		Boys (*N* = 1,675)		Girls (*N* = 1,637)	
	Same-gender likeability	Cross-gender likeability	Same-gender likeability	Cross-gender likeability	Same-gender likeability	Cross-gender likeability
Popularity	.04*	.25***	.03	.21***	.06*	.30***
Substance use	.03	.14***	.05	.13***	.03	.15***
Athletic abilities	.21***	.33***	.32***	.31***	.19***	.34***
Physical attractiveness	.31***	.43***	.22***	.47***	.34***	.55***
Physical aggression	–.17***	–.06***	–.16***	–.12***	–.13***	–.04
Relational aggression	–.04*	.02	–.16***	.02	–.03	.08**

*$p < .05$. **$p < .01$. ***$p < .001$.

associated with cross-gender than same-gender likeability (rs = .43 and .31, $z = 8.02$, $p < .001$) in the total sample. Overt aggression was more negatively related to same-gender than cross-gender likeability (rs = –.17 and –.06, respectively, $z = 6.42$, $p < .001$). Finally, relational aggression was negatively associated with same-gender likeability for boys ($r = –.16$), whereas it was positively related to cross-gender likeability for girls ($r = .08$).

Multilevel Regression Analyses

Same-gender and cross-gender likeability were predicted in a 4-step multilevel regression using MlwiN 2.00 (Rasbash et al., 2000). Multilevel analyses

enabled us to control for the violation of nonindependence of observations caused by the nested structure of the data, that is, adolescents (Level 1) within classrooms (Level 2; Snijders & Bosker, 1999). The multilevel analyses controlled for unobserved differences between classrooms and therefore yielded more accurate estimates of the Level 1 effect that if the effect of classroom was ignored. All hypotheses were tested with these multilevel regressions. In Step 1, gender and popularity and their interaction were entered. In Step 2, substance use, athletic abilities, attractiveness, overt aggression, and relational aggression were added to the model. In Step 3, the interactions of these characteristics with gender were added. If a characteristic did not interact with gender, its effects were reported from Step 2. If it did interact with gender, its effects were reported from Step 3. In Step 4, the two-way interactions of each main effect from Step 2 with popularity were added. We also examined the three-way interactions of each main effect from Step 2 with both gender and popularity in an extra step but they yielded no further significant effects. Therefore, they are not reported. The results from Steps 1 through 3 are summarized in Tables 3 and 4.

The first set of hypotheses addressed the *direction* of the effects of popularity, substance use, athletic abilities, attractiveness, and physical, and relational aggression on same- and cross-gender likeability. These effects are listed in Table 5, separately for boys and girls. They were derived from analyses that included both the main effects of these variables as well as their interactions with gender. In one set of analyses, girls were the reference category (coded as zero), meaning that the main effects hold for girls, whereas the interactions indicate how boys differ from girls. In a second set of analyses, boys were the reference category (coded as zero). Table 5 lists the main effects from these two sets of analyses.

As predicted by Hypothesis 1a, popularity was significantly related to same-gender and cross-gender likeability for boys (*b*s = .07 and .25, respectively) and girls (*b*s = .07 and .31, respectively; see Step 1 in Tables 3 and 4).

Also as expected (Hypothesis 1b), substance use was positively associated with same-gender likeability and cross-gender likeability (*b*s = .05 and .05, respectively; Step 2 in Tables 3 and 4). Athletic abilities were associated with same-gender likeability for boys and for girls (*b*s = .27 and .06, respectively) as well as with cross-gender likeability for boys and for girls (*b*s = .11 and .18, respectively; Step 3 in Tables 3 and 4). The same holds for physical attractiveness, but it appeared to be more strongly associated with same-gender likeability for girls ($b = .35$) than for boys ($b = .09$), while it was more conducive to cross-gender likeability in boys ($b = .54$) than in girls ($b = .38$; Step 3 in Tables 3 and 4).

Table 3. Results of Multilevel Regression Analyses Predicting Same-Gender Likeability (N = 3,312)

	Step 1		Step 2		Step 3		Step 4	
	b	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*
Main effect popularity								
Gender (1 = *boys*)	–.224***	.032	–.118**	.041	–.134**	.045	–.135**	.044
Popularity	.074*	.023	–.095***	.027	–.121***	.029	–.026	.038
Gender × Popularity	–.013	.032	.059	.032	.110**	.038	.042	.052
Main effects characteristics								
Substance use			.047**	.018	.026	.027	.040	.028
Athletic abilities			.182***	.018	.056	.030	.060*	.030
Physical attractiveness			.272***	.022	.349***	.025	.344***	.025
Physical aggression			–.146***	.018	–.211***	.047	–.238***	.047
Relational aggression			–.091***	.019	–.049*	.022	–.052*	.023
Gender interactions								
Gender × Substance use					.030	.033	.028	.033
Gender × Physical attractiveness					–.255***	.044	–.227***	.044
Gender × Athletic abilities					.210***	.037	.198***	.037
Gender × Physical aggression					.072	.051	.081	.051
Gender × Relational aggression					–.128***	.039	–.129**	.040
Popularity interactions								
Popularity × Substance use							–.029*	.014
Popularity × Athletic abilities							–.044**	.016
Popularity × Physical attractiveness							–.035*	.016
Popularity × Physical aggression							.051**	.014
Popularity × Relational aggression							–.031*	.015
Explained variance	1.7%		15.9%		17.4%		18.5%	
Deviance	8,912		8,398		8,337		8,301	
Decrease in deviance	65 (df = 3)**		514 (df = 5)***		61 (df = 5)**		36 (df = 5)**	

Note: Decrease in deviance indicates whether the model fits the data better than the former model. The decrease in deviance has approximately a chi-square distribution with the degrees of freedom equal to the difference in the number of parameters of the models.

a. In the model without the interaction of gender with popularity, the effect of popularity was b = .07, $t(3311)$ = 4.19, p < .001.

*p < .05. **p < .01. ***p < .001.

Table 4. Results of Multilevel Regression Analyses Predicting Cross-Gender Likeability (N = 3,312)

	Step 1		Step 2		Step 3		Step 4	
	b	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*
Main effect popularity								
Gender (1 = *boys*)	.139***	.028	.440***	.035	.472***	.037	.469***	.037
Popularity	.311***	.021	.014	.023	.043	.024	.133***	.032
Gender × Popularity	–.063*	.028	.090***	.026	.027	.031	.014	.043
Main effects characteristics								
Substance use			.051***	.015	.040	.023	.049*	.024
Athletic abilities			.139***	.015	.176***	.025	.182***	.025
Physical attractiveness			.421***	.018	.381***	.021	.378***	.021
Physical aggression			–.144***	.015	–.115**	.039	–.127**	.039
Relational aggression			–.015	.016	–.043*	.019	–.052**	.019
Two-way gender interactions								
Gender × Substance use					.020	.027	.019	.027
Gender × Athletic abilities					–.069*	.031	–.085**	.031
Gender × Physical attractiveness					.157***	.037	.183***	.037
Gender × Physical aggression					–.036	.042	–.031	.042
Gender × Relational aggression					.096**	.033	.092**	.033
Popularity interactions								
Popularity × Substance use							–.021	.011
Popularity × Athletic abilities							–.067***	.013
Popularity × Physical attractiveness							–.045***	.013
Popularity × Physical aggression							.014	.012
Popularity × Relational aggression							–.016	.012
Explained variance	6.3%		28.2%		28.5%		29.3%	
Deviance	8,170		7,246		7,217		7,155	
Decrease in deviance	374 (df = 3)***		924 (df = 5)***		29 (df = 5)**		62 (df = 5)**	

Note: Decrease in deviance indicates whether the model fits the data better than the former model. The decrease in deviance has approximately a chi-square distribution with the degrees of freedom equal to the difference in the number of parameters of the models.

a. In the model without the interaction of gender with popularity, the effect of popularity was b = .29, $t(3311)$ = 18.47, p < .001.

*p < .05. **p < .01. ***p < .001.

Table 5. Unstandardized Regression Coefficients of Effects of Popularity and Characteristics on Same-Gender Likeability and Cross-Gender Likeability for Boys and Girls Separately

	Same-gender likeability	Cross-gender likeability	Difference (z test)
Popularity			
Boys	.074	.248	5.80***
Girls	.074	.311	7.65***
Substance use			
Boys	.047	.051	.15
Girls	.047	.051	.15
Athletic abilities			
Boys	.266	.106	5.33***
Girls	.056	.176	3.08**
Physical attractiveness			
Boys	.094	.539	8.82***
Girls	.349	.381	.91
Physical aggression			
Boys	–.146	–.144	.43
Girls	–.146	–.144	.43
Relational aggression			
Boys	–.178	.054	5.75***
Girls	–.049	–.043	.91

*$p < .05$. **$p < .01$. ***$p < .001$.

As expected (Hypothesis 1c), physical aggression was negatively related to same-gender likeability and to cross-gender likeability (*b*s = –.15 and –.14, respectively; Step 2 in Tables 3 and 4). No gender effects were found. Relational aggression was more negatively associated with same-gender likeability for boys ($b = –.18$) than for girls ($b = –.05$). Relational aggression was also negatively related to cross-gender likeability for girls ($b = –.04$), whereas for boys a positive association was found ($b = .05$; Step 3 in Tables 3 and 4).

The second set of hypotheses concerned the difference in *strength* of the effects of the main variables on same-gender and cross-gender likeability. Here, we expected that popularity as well as those characteristics that account for popularity (i.e., substance use, athletic abilities, and physical attractiveness) would be more strongly related to cross-gender likeability than to same-gender likeability, whereas physical aggression and relational aggression as means to maintain a popular status would particularly be negatively related to same-gender likeability. Following recommendations by

Paternoster, Brame, Mazerolle, and Piquero (1998), we tested whether the *b* coefficients were significantly different between the predictions of same-gender likeability versus cross-gender likeability (see Table 5).

As expected, popularity was more strongly associated with cross-gender than same-gender likeability both for boys, $z = 5.80$, $p < .001$, and girls, $z = 7.65$, $p < .001$. For substance use, no difference was found in its relationship with same-gender and cross-gender likeability ($z = .15$, $p = .88$). Furthermore, we found that for boys athletic abilities were more strongly related to same-gender likeability than to cross-gender likeability, $z = 5.33$, $p < .001$, whereas for girls athletic abilities were more predictive for cross-gender likeability than for same-gender likeability, $z = 3.08$, $p < .01$. For boys, however, physical attractiveness was particularly associated with cross-gender likeability rather than with same-gender likeability ($z = 8.82$, $p < .001$). Although for girls, physical attractiveness was also more strongly associated with cross-gender likeability than with same-gender likeability, this difference appeared not to be significant ($z = .91$, $p = .36$).

No difference was found for the relationship of physical aggression with same-gender and cross-gender likeability ($z = .43$, $p = .67$). In a similar way, no difference was found for the association of relational aggression with same-gender and cross-gender likeability for girls ($z = 0.34$, $p = .73$). For boys, however, it appeared that relational aggression was negatively related to same-gender likeability and positively to cross-gender likeability ($z = 5.75$, $p < .001$).

As the regression coefficients were standardized, they also indicate the relative contribution of each variable to same- and cross-gender likeability. For boys, same-gender likeability was most strongly predicted by athletic abilities. For girls this was physical attractiveness. For both boys and girls, the strongest correlates of cross-gender likeability were popularity and attractiveness. In addition, athletic abilities also strongly predicted cross-gender likeability for girls. Physical and relational aggression and substance use were relative weak predictors of the outcome variables.

The third set of hypotheses was aimed at the *moderating* effect of popularity on the association of features that help to achieve status and those aimed at maintaining status with same-gender and cross-gender likeability. Specifically, we examined the extent to which popularity moderated the effects of substance use, athletic abilities, physical attractiveness, physical aggression, and relational aggression on likeability by same-sex and cross-sex peers. It appeared that the effects of both athletic abilities and physical attractiveness on likeability by same-gender peers and cross-gender peers were moderated by popularity. Furthermore, the effects of substance use, physical aggression,

and relational aggression on same-gender likeability were also moderated by popularity. No three-way interactions were found with gender. To facilitate the interpretation of the interaction effects, we composed multiple equations, alternating the values of the main effects ($M \pm 1$ *SD*) and holding all other variables in the models to their sample means (Aiken &West, 1991). Interaction effects were based on the unstandardized regression coefficients.

In line with Hypothesis 3a, it appeared that the effect of substance use on same-gender likeability was only significant for less-popular adolescents, $b = .07$, $t(3311) = 1.97$, $p < .05$, and not for more-popular adolescents, $b = .01$, $t(3311) = 0.41$, $p = .68$. No moderation effect was found for substance use on cross-gender likeability. Athletic abilities affected both same-gender and cross-gender likeability more strongly for less-popular adolescents, $b = .10$, $t(3311) = 2.89$, $p < .01$ and $b = .25$, $t(3311) = 8.30$, $p < .001$, respectively, than for more-popular adolescents, $b = .02$, $t(3311) = 0.53$, $p = .60$ and $b = .12$, $t(3311) = 4.26$, $p < .001$, respectively. The same expected pattern emerged for physical attractiveness, which was more strongly associated with same-gender likeability and cross-gender likeability for less-popular adolescents, $b = .38$, $t(3311) = 12.26$, $p < .001$ and $b = .42$, $t(3311) = 16.27$, $p < .001$, respectively, compared to more-popular adolescents, $b = .31$, $t(3311) = 11.04$, $p < .001$ and $b = .33$, $t(3311) = 14.48$, $p < .001$, respectively.

Contrary to Hypothesis 3b, likeability by same-gender peers was more negatively affected by physical aggression for less-popular adolescents, $b = -.29$, $t(3311) = 5.56$, $p < .001$, than for more-popular adolescents, $b = -.19$, $t(3311) = 3.96$, $p < .001$. In line with our hypothesis, we found that relational aggression negatively affected same-gender likeability only for more-popular adolescents, $b = -.08$, $t(3311) = 3.36$, $p < .001$, and not for less-popular adolescents, $b = -.02$, $t(3311) = 0.72$, $p = .47$.

Finally, the moderating effects of popularity in explaining same- and cross-gender likeability were relatively small compared to the main effects of Step 2. To determine whether the model fit the data better than the previous model, the decrease in deviance was examined (see Tables 3 and 4). It follows a χ^2 distribution, with degrees of freedom equal to the difference in parameters between the models. A significant decrease in deviance indicates a significant improvement of model fit. Both models for same- and cross-gender likeability improved significantly over previous models. For all models, variance explained increased with the addition of new hypotheses. The sizes of these effects were small (Cohen, 1988), for the models with gender interactions (Step 3) and those with moderation by popularity (Step 4).

Discussion

The current study was undertaken to examine the relationship between popularity and likeability. More specifically, we examined the associations of popularity as well as substance use, athletic abilities, physical attractiveness, and physical and relational aggression on likeability by same-gender and cross-gender peers. As a theoretical starting point, we used a goal-framing perspective, which considers behaviors and characteristics in the light of its contribution to goals. One particular goal that becomes highly salient for adolescents is status in the peer group (Adler & Adler, 1998; Corsaro & Eder, 1990; Ollendick et al., 1992; Prinstein & La Greca, 2004; Sullivan, 1953). We use the theory of the maturity gap (Agnew, 2003; Moffitt, 1993) to specify what features are likely to contribute to status for adolescents. We argued that status can be achieved by features that stress maturity and contribute to closing the maturity gap (substance use, athletic abilities, and physical attractiveness), whereas physical and relational aggression are particularly helpful to maintain status among peers. Building on this distinction, we argued on the basis of goal-framing theory that features that contribute to goal achievement also for others will not only make popular but also will positively affect being liked by peers, whereas characteristics that help to maintain status thwart goal achievement of others and, therefore, reduce likeability by peers. In short, the theory of the maturity gap allowed rather specific predictions from the goal-framing theory about popularity and likeability. It seems to be a fruitful combination of the theories.

It was thus expected that substance use, athletic abilities, and physical attractiveness would be conducive to both popularity and likeability by peers, whereas physical aggression and relational aggression is negatively related to likeability even though it contributes to popularity. Our results supported these expectations by showing with regard to the *direction* of the effects that popularity as well as substance use, athletic abilities, and physical attractiveness were beneficial to liking by peers, whereas physical aggression and relational aggression decreased liking.

In addition, two effects of gender are of particular interest. We found that the effects of athletic abilities and physical attractiveness on same-gender likeability were mirrored for boys and girls. Whereas athletic ability was more strongly associated with same-gender likeability for boys, physical attractiveness was more strong related to same-gender likeability for girls. The exact opposite pattern was found for cross-gender likeability. These findings indicate that what boys and girls value in their same-gender peers (athletic abilities and physical attractiveness, respectively) is also valued in

cross-gender peers. This suggests that crossing the gender boundaries in adolescence is facilitated by resembling features of the opposite gender (see also Dijkstra et al., 2007). No large gender differences were found for the effects of physical and relational aggression except that relational aggression was more negatively associated with same-gender likeability for boys.

Furthermore, this study was conducted with a large sample of adolescents for which extensive peer nomination data were available. This allowed us to examine differences in *strength* of associations of popularity as well as substance use, athletic abilities, physical attractiveness, and physical and relational aggression with same-gender and cross-gender likeability. The results underline that disentangling liking by same- and cross-gender peers helps to understand the ways in which popularity and status-enhancing features are linked to being liked by peers. Our hypotheses concerning same- and cross-gender effects were based on the idea that competition and aggression for the maintenance of popularity are directed mainly at same-gender peers and therefore will evoke ambivalence in them. Thus, we hypothesized that features that enhance popularity and stress maturity (substance use, athletic ability, and physical attractiveness) would have a weaker effect on same-gender than cross-gender likeability.

These expectations were partially supported. Particularly, popularity was by far more conducive to likeability by cross-sex peers than by same-sex peers. For girls, only athletic abilities were more strongly related to cross-gender likeability than to same-gender likeability, whereas for boys only physical attractiveness was only more strongly associated with cross-gender likeability. Physical aggression and relational aggression were expected to be especially detrimental to same-gender likeability. However, no significant difference was found for the association of physical aggression with same-gender likeability and cross-gender likeability, whereas only for boys relational aggression was more strongly related to same-gender likeability.

The reason that we did not find the expected effects for physical aggression and only partially for relational aggression could be due to the way both forms of aggression were measured. In the current study, participants were asked to nominate those peers who often fight or quarrel (physical aggression) and those who often gossips and spreads rumors about others (relational aggression). Particularly, our measure of physical aggression might be too broad and lack specificity with regard to the exact type of aggression and to whom it is directed. For example, previous research has already shown that proactive and reactive aggression are differently associated with peer group statuses (Card & Little, 2006; Prinstein & Cillessen, 2003). Specifically, Prinstein and Cillessen (2003) found that popularity among peers was

particularly associated with proactive aggression. Considering the nature of proactive aggression, this finding fits our theoretical framework that aggression, particularly proactive, is an important means to maintain status.

In addition, specifying to whom aggression is directed allows us to consider the extent to which aggression is directed toward same-gender and cross-gender peers. Combining such information with specific forms of aggression would further help to differentiate between different forms of aggression and its role in maintaining status. This would also allow us to examine the role of bullying, which has also been considered as means to establish status hierarchies (Pellegrini & Bartini, 2001). If bullying is indeed a means to maintain status and competition for status mainly occurs among same-gender peers, one would expect that bullying is mainly directed at same-gender peers. However, a study by Veenstra and colleagues (2007) showed no large differences in the level of bullying toward same-gender and cross-gender peers. Either this finding contradicts our theoretical notion that aggression is a means to maintain status (aimed at same-gender peers) or bullying is not really a means to maintain status. In future research, disentangling these aspects of type and target of aggression and their associations with popularity and likeability could bring us more insight into the dynamics of maintaining status among peers who form a threat to a popular status.

Finally, we considered the *moderating* role of popularity for the effects of all characteristics on likeability. Here, we argued that for adolescents who are already popular, the added effect of substance use, athletic abilities, and physical attractiveness on likeability by peers is weaker than for adolescents who are not (yet) popular. As expected, we found that the positive effects of both athletic abilities and physical attractiveness on same-gender as well as cross-gender likeability were indeed more pronounced for less-popular adolescents than for more-popular adolescents. The same effect was found for substance use but only for same-gender likeability.

Furthermore, we expected that popularity will strengthen the negative effects of physical aggression and relational aggression, particularly among same-gender peers. As expected, the interaction of popularity with both forms of aggression was only significant for same-gender likeability. However, the results supported this expectation only for relational aggression, that is, relational aggression was negatively related to same-gender likeability only for more-popular adolescents. The negative effect of physical aggression was, however, stronger for less-popular than for more-popular adolescents. Apparently, popular adolescents are more "allowed" to be aggressive than less-popular adolescents, as indicated by the fact that for popular adolescents, physical aggressiveness does not detract much from

likeability. An explanation is offered by Dijkstra, Lindenberg, and colleagues (2009), who showed that antisocial behaviors were particularly conducive to popularity when combined with other positive, prosocial characteristics, such as athleticism, physical attractiveness, and being supportive toward peers. These peer valued characteristics seem to take off the sharp edges of the negative features of antisocial behavior.

It should be noted that the moderator effects of popularity were relatively small. The strongest predictors of same- and cross-gender likeability were the main effects of popularity, attractiveness, and athletic abilities. The effect of physical aggression was modest, whereas relational aggression strongly predicted same-gender likeability for boys. Finally, substance use was not to a powerful predictor of either same-gender or cross-gender likeability.

Limitations

This study has some limitations. First, the data from this study were cross-sectional. Thus, it is not possible to conduct analyses that allow conclusions about causality. Hence, we were also unable to trace the development of behaviors over time. Others (Allen et al., 2005), however, showed for characteristics that are related to the achievement of popularity that popularity increased antisocial behavior over time. They argued that popular adolescents need to maintain or even increase their involvement in certain behaviors to keep their position in the peer hierarchy. Also for behaviors related to maintenance of popularity, such as physical aggression and relational aggression, we could not examine in what way these behaviors develop. A social dominance approach would expect that such behaviors decline in peer groups once status hierarchies are stabilized (Pellegrini & Bartini, 2001). Future research could profit from our distinction between features to achieve and maintain status to disentangle the development of different antisocial behaviors in relationship to popularity over time. Whereas nonaggressive antisocial behaviors that help bridge the maturity-gap, such a substance use, might increase over time, aggressive antisocial behaviors aimed at maintenance of a high-status might decline.

Second, all data in this study were derived from peer nominations, which could probably lead to problems regarding shared method variance (Vaillancourt & Hymel, 2006). However, there are two counterarguments. For one, measures derived from peer nominations are aggregated across multiple nominators, which enhance the reliability and validity of peer nomination data (Bukowski, Gauze, Hoza, & Newcomb, 1993; Bukowski & Hoza, 1989). Moreover, respondents in our study were allowed to name an unlimited

number of same-gender as well as cross-gender peers. Consequently, we avoided a ceiling effect in which respondents tend to nominate the number of peers they are maximally allowed. Results of our study clearly showed the added value of this research design by revealing a high average number of nominations given to same-gender peers as well as cross-gender peers, which could not be captured by limited nominations.

It should also be considered that the goal of this study was to investigate to what extent popularity as well as other characteristics account for likeability of adolescents among peers. Peer nominations are especially well suited to determine which characteristics are related to likeability because the peers' knowledge about the behaviors and characteristics of other peers is the basis for the process of status attribution.

Furthermore, it is important to note that variables as derived from peer nominations reflect the level of agreement by peers regarding status or other features by any individual student in the classroom. Although partially accounted for by the strength of associations, it is important to keep in mind that an association between a peer nomination for popularity or likeability and a peer nomination of status-enhancing traits and behaviors does not necessarily mean that the same association exists in the minds of the perceivers (LaFontana & Cillessen, 2002).

Third, this study focused only on the classroom. Peer relationships in other contexts, such as neighborhood or clubs, were not assessed. Still, the classroom is an important context for adolescent popularity and likeability (Csikszentmihalyi & Larson, 1984). In the 1st and 2nd years of secondary school, the adolescents of this study spend much time with the same classroom peers. In this regard, differences at the classroom level were not examined in this study. Although we controlled for nesting with multilevel analyses, no hypotheses were tested about classroom-level effects. This study addressed primarily the individual-level associations of popularity and its determinants with same- and cross-gender likeability. Future research might examine how these effects are further qualified by classroom characteristics. Jonkmann, Trautwein, and Lüdtke (2009) showed how classroom context affects the correlates of social dominance. This warrants a further look at the way in which the predictors of status are influenced by contextual factors such as classroom norms.

Fourth, our measure of popularity was somewhat different from other studies. It reflects the extent to which adolescents want to affiliate with certain peers (cf. Dijkstra, Cillessen, Lindenberg, & Veenstra, 2009). Whereas popularity is usually measured with most and least popular nominations, we assessed a particular aspect of popularity that is, the power to attract peers.

On the one hand, this might be a disadvantage because it reduces the comparability with other research. On the other hand, we captured a specific aspect of popularity (the power to attract) rather than the broad multidimensional notion that encompasses among other things, influence, social power as well as attractiveness for affiliation (de Bruyn & Cillessen, 2006; LaFontana & Cillessen, 2002; Lease et al., 2002; Parkhurst & Hopmeyer, 1998). From a developmental point of view, adolescents power to attract peer is particularly interesting because it is directly associated with the goal of closing the maturity gap.

Overall, the results of this study shed new light on the association between popularity and likeability. Future research may benefit from a goal-framing approach when examining this association, and the degree to which both dimensions are compatible with each other. This study demonstrated the importance of distinguishing same- and cross-gender perspectives. Thus, when examining such important goals as achieving and maintaining popularity, the gender of the adolescent as well as of the adolescent's peers must be taken into account.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

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Bios

Jan Kornelis Dijkstra, PhD, is assistant professor at the Department of Sociology and the Interuniversity Center for Social Science Theory and Methodology (ICS) in Groningen, the Netherlands. His research interests are peer relationships, peer groups, peer influence, status/popularity in middle childhood and adolescence, the development of antisocial behavior and delinquency, and social network analyses.

Antonius H. N. Cillessen, PhD, is professor and chair of developmental psychology in the Behavioral Science Institute at the Radboud Universiteit Nijmegen, The Netherlands and a senior research scientist in the Department of Psychology at the University of Connecticut. His research interests include peer relationships and peer interaction in middle childhood and early adolescence, development of aggression and antisocial behavior, developmental social psychology (small groups and interpersonal perception), and research methods for developmental psychology (sociometric methods, social network analysis, observational research, longitudinal design and analysis).

Siegwart Lindenberg, PhD, is professor of cognitive sociology in the Department of Sociology and the Interuniversity Center for Social Science Theory and Methodology (ICS), University of Groningen, the Netherlands. He is a member of the Royal Netherlands Academy of Arts and Sciences. His interests lie in the development and application of theories of "social rationality" that deal with the influence of the social environment on social behavior via its influence on cognitive and motivational processes.

René Veenstra, PhD, is associate professor at the Department of Sociology and the Interuniversity Center for Social Science Theory and Methodology (ICS) in Groningen, the Netherlands. He is visiting professor at the Department of Psychology at the University of Turku, Finland. He has published on bullying and victimization, prosocial and antisocial behavior, and temperament-by-environment interactions.